Math 212
Quiz 18

W 12 Oct 2016

Your name: _____

Exercise

(2 pt) Let $f : \mathbf{R}^2 \to \mathbf{R}$ be given by

$$f(x, y) = 3x^2 - 6xy^2 + 2y,$$

and let $R \subseteq \mathbf{R}^2$ be the rectangle

$$R = \left\{(x, y) \in \mathbf{R}^2 \,|\, 0 \leqslant x \leqslant 2, 0 \leqslant y \leqslant 1\right\}.$$

We wish to evaluate the double integral $\iint_R f(x, y)\, dA$.

(a) (0.5 pt) Justify why you can write the double integral as an iterated integral. *Hint:* Two words, rhymes with "Houdini's serum". Heart points for noting a sufficient condition on f.

(b) (1.5 pt) Evaluate the integral $\iint_R f(x, y)\, dA$.